

AMENDMENTS TO THE CLAIMS

The listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claims 1-32 (canceled)

33. (previously presented) A radiation beam aligning apparatus, comprising:

(a) a flow chamber;

(b) a screen having a mirrored surface interrupted by one or more pin holes passing through said screen;

(c) a means for directing a radiation beam from said flow chamber to said screen; and

(d) a means for detecting said radiation beam reflected by said mirrored surface, wherein said detecting means determines a position of said radiation beam relative to said pin hole.

34. (original) The apparatus of claim 33, wherein said mirrored surface comprises a planar surface.

35. (original) The radiation directing device of claim 33, wherein said pin holes are disposed at a substantially non-orthogonal angle b with respect to a planar surface of said screen.

36. (original) The apparatus of claim 33, wherein said mirrored surface is placed to reflect a radiation beam at an angle 2 times b .

37. (original) The apparatus of claim 33, wherein said screen having a mirrored surface is interrupted by 2 or more pin holes passing through said screen.

38. (currently amended) The apparatus of claim 37, wherein said means for changing the direction of propagation is placed to direct [a] said radiation beam passing through each of said 2 or more pin holes orthogonal to a forward direction of propagation of said radiation beam.

39. (original) The apparatus of claim 33, further comprising a means for changing the direction of propagation for radiation beams passing through said one or more pin holes, said direction changing means and said pin holes being juxtaposed.

40. (original) The radiation directing device of claim 39, wherein said means for changing direction is juxtaposed at an angle β with respect to a line intersecting said pin holes.

41. (original) The apparatus of claim 40, wherein said direction changing means further comprises one or more prisms.

42. (original) The apparatus of claim 33, wherein said one or more pin holes have an elliptical shape.

43. (original) The apparatus of claim 33, wherein said radiation detecting means further comprises an image detection device.

44. (original) The apparatus of claim 33, further comprising a means for collimating radiation reflected by said mirrored surface, said collimating means placed to direct radiation to said radiation detecting means.

45. (original) The apparatus of claim 33, further comprising a means for directing radiation reflected by said radiation reflecting means to said radiation detecting means.

46. (original) The apparatus of claim 33, wherein said radiation directing

means comprises a lens.

47. (original) A flow cytometer comprising the apparatus of claim 33.

48. (original) An automated system for aligning a radiation beam,
comprising:

(a) a screen having a mirrored surface interrupted by one or more pin
holes passing through said screen;

(b) a means for directing a radiation beam to said screen, said directing
means attached to a positioning device;

(c) a means for detecting radiation reflected by said mirrored surface,
wherein said detecting means determines a position of a radiation beam relative to
said pin hole; and

(d) a computer system controlling movement of said positioning device,
said computer system receiving signal from said detection means and sending a
processed output signal to said positioning device, wherein said output signal directs
the movement of said positioning device.

49. (original) The automated system of claim 48, further comprising a flow
chamber, said flow chamber attached to said positioning device.

50. (original) The automated system of claim 48, further comprising a
means for directing radiation from a radiation source to a flow chamber, said means
for directing radiation from a radiation source to a flow chamber attached to said
positioning device.

Claims 51-61 (canceled)

62. (original) The apparatus of claim 33, wherein said pin hole comprises a

material transparent to radiation in the UV, VIS or IR regions of the spectrum quartz.

63. (original) The radiation directing device of claim 62, wherein said material comprises quartz.

64. (original) The radiation directing device of claim 62, wherein said material comprises glass.

65. (original) The automated system of claim 48, wherein said pin hole comprises a material transparent to radiation in the UV, VIS or IR regions of the spectrum quartz.

66. (original) The radiation directing device of claim 65, wherein said material comprises quartz.

67. (original) The radiation directing device of claim 65, wherein said material comprises glass.

68. (original) An automated system for aligning a radiation beam, comprising:

(a) a screen having a mirrored surface interrupted by one or more pin holes passing through said screen;

(b) a flow chamber, said flow chamber attached to a positioning device;

(c) a means for directing a radiation beam to said screen;

(d) a means for detecting radiation reflected by said mirrored surface,

wherein said detecting means determines a position of a radiation beam relative to said pin hole; and

(e) a computer system controlling movement of said positioning device, said computer system receiving a signal from said detection means and sending a processed output signal to said positioning device, wherein said output signal directs

the movement of said positioning device.

69. (canceled) The automated system of claim 68, wherein said means for directing a radiation beam to said screen is attached to said positioning device.

70. (original) An automated system for aligning a radiation beam,
comprising:

(a) a screen having a mirrored surface interrupted by one or more pin holes passing through said screen;

(b) a flow chamber;

(c) a means for directing radiation to said flow chamber, said means for directing radiation to said flow chamber attached to a positioning device;

(d) a means for detecting radiation reflected by said mirrored surface, wherein said detecting means determines a position of a radiation beam relative to said pin hole; and

(e) a computer system controlling movement of said positioning device, said computer system receiving a signal from said detection means and sending a processed output signal to said positioning device, wherein said output signal directs the movement of said positioning device.

71. (canceled)